sequence SEQUENCE LISTING <110> Langley, Ries Fraser, John David <120> Set 1 Proteins And Uses Thereof 55502-012us1 <130> <140> 10/594,291 2004-12-07 <141> <150> AU 2004901570 <151> 2004-03-24 <160> 18 <170> PatentIn version 3.5 <210> 1 231 2210
231
2212> PRT
2213> Staphylococcus aureus <400> 1 Met Lys Leu Lys Thr Leu Ala Lys Ala Thr Leu Ala Leu Gly Leu Leu 1 10 15 Thr Thr Gly Val Ile Thr Ser Glu Gly Gln Ala Val Gln Ala Ala Glu Lys Gln Glu Arg Val Gln His Leu His Asp Ile Arg Asp Leu His Arg 35 40 45 Tyr Tyr Ser Ser Glu Ser Phe Glu Tyr Ser Asn Val Ser Gly Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Pro Lys Asp Gln 65 70 75 80 Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Glu Gln Tyr Lys Glu Gly Leu Gln Gly Gln Asn Val Phe Val Val Gln Glu Leu Ile Asp Pro $100 \hspace{1.5cm} 105 \hspace{1.5cm} 110$ Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Lys Thr Ser Glu Thr Asn Thr Pro Leu Phe Val Asn Lys Val Asn Gly Glu 130 135

Asp Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Gln Lys Glu Glu Ile

Page 1

Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Gln Gln Leu Val Asn Asn 165 170 175 Tyr Gly Leu Tyr Lys Gly Thr Ser Lys Tyr Gly Lys Ile Ile Ile Asn Leu Lys Asp Glu Asn Lys Val Glu Ile Asp Leu Gly Asp Lys Leu Gln 195Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Arg Gly Ile 210 215 220 Ser Val Thr Ile Asn Gln Ile 225 230 <210> 2 <211> 231 <212> PRT <213> Staphylococcus aureus

150

<400> 2

Met Lys Leu Lys Thr Leu Ala Lys Ala Thr Leu Ala Leu Gly Leu Leu 1 10 15 Thr Thr Gly Val Ile Thr Ser Glu Gly Gln Ala Val Gln Ala Ala Glu 20 25 30

Lys Gln Glu Arg Val Gln His Leu His Asp Ile Arg Asp Leu His Arg 35 40 45

Tyr Tyr Ser Ser Glu Ser Phe Glu Tyr Ser Asn Val Ser Gly Lys Val 50 60

Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Pro Lys Asp Gln 65 70 70 75

Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Glu Gln Tyr Lys Glu 85 90 95

Gly Leu Gln Gly Gln Asn Val Phe Val Val Gln Glu Leu Ile Asp Pro 100 105 110

Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Lys 115 120 125

Thr Ser Glu Thr Asn Thr Pro Leu Phe Val Asn Lys Val Asn Gly Glu

Asp Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Gln Lys Glu Glu Ile 145 150 160 Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Gln Gln Leu Val Asn Asn 165 170 175 Tyr Gly Leu Tyr Lys Gly Thr Ser Lys Tyr Gly Lys Ile Ile Ile Asn 180 185 190 Leu Lys Asp Glu Asn Lys Val Glu Ile Asp Leu Gly Asp Lys Leu Gln 195 200 205 Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Arg Gly Ile 210 215 220 Ser Val Thr Ile Asn Gln Ile 225 230

135

<210> 3 <211> 231 <212> PRT <213> Staphylococcus aureus

<400> 3

Met Lys Leu Lys Thr Leu Ala Lys Ala Thr Leu Ala Leu Gly Leu Leu 1 5 10 15 Thr Thr Gly Val Ile Thr Ser Glu Gly Gln Ala Val His Ala Lys Glu 20 25 30 Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu Tyr Arg 40 45Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly Lys Val 50 55 60 Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu Lys Gln 65 70 75 80 Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Asp Lys Tyr Lys Lys 85 90 95 Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile Asp Pro 100 105 110

Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Lys

Ser Ser Glu Thr Asn Thr His Leu Phe Val Asn Lys Val Tyr Gly Gly 130 135 140 Asn Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Asn Lys Glu Glu Val 145 150 160 Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Lys Gln Leu Val Glu Lys 165 170 175Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr Ile Asn $180 \ \ \, 185 \ \ \, 190 \ \ \,$ Leu Lys Asp Glu Lys Lys Glu Val Ile Asp Leu Gly Asp Lys Leu Gln
195 200 205 Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Gln Asn Ile 210 215 220Ala Val Thr Ile Asn Gln Ile 225 230 <210> 4 <211> 231 <212> PRT

<213> Staphylococcus aureus

<400> 4 Met Lys Leu Lys Thr Leu Ala Lys Ala Thr Leu Ala Leu Gly Leu Leu 1 5 10 15Thr Thr Gly Val Ile Thr Ser Glu Gly Gln Ala Val His Ala Lys Glu Lys Gln Glu Arg Val Gln Glu Leu Tyr Asp Ile Lys Asp Leu Tyr Arg 35 40 45 Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu Lys Gln 65 70 75 80 Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Asp Lys Tyr Lys Lys 85 90 95

Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile Asp Pro

Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Lys 115 120 125 Ser Ser Glu Thr Asn Thr His Leu Phe Val Asn Lys Val Tyr Gly Gly 130 135 140 Asn Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Asn Lys Glu Glu Val 145 150 150 160 Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Lys Gln Leu Val Glu Lys 165 170 175 Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr Ile Asn Leu Lys Asp Glu Lys Lys Glu Val Ile Asp Leu Gly Asp Lys Leu Gln 195 200 205 Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Gln Asn Ile 210 215 220 Ala Val Thr Ile Asn Gln Ile 225 230

<210> 5 <211> 231 <212> PRT <213> Staphylococcus aureus

<400> 5 Met Lys Leu Lys Thr Leu Ala Lys Ala Thr Leu Ala Leu Gly Leu Leu 1 5 10 15 Thr Thr Gly Val Ile Thr Ser Glu Gly Gln Ala Val Gln Ala Lys Glu 20 25 30 Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu His Arg 35 40 45 Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu Asn Gln 65 70 75 80

Asn His Gln Leu Phe Leu Ser Gly Lys Asp Lys Asp Lys Tyr Lys Glu

Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile Asp Pro 100 105 110 Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Gln Ser Ser Glu Thr Asn Thr Pro Leu Phe Ile Lys Lys Val Tyr Gly Gly 130 135 140 Asn Leu Asp Ala Ser Ile Glu Ser Phe Leu Ile Asn Lys Glu Glu Val 145 150 160 Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Gln His Leu Val Lys Asn 165 170 175 Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr Phe Asn $180 \ \ \, 185 \ \ \, 190 \ \ \,$ Leu Lys Asp Gly Glu Lys Gln Glu Ile Asp Leu Gly Asp Lys Leu Gln
195 200 205 Phe Glu His Met Gly Asp Val Leu Asn Ser Lys Asp Ile Gln Asn Ile 210 215 220 Ala Val Thr Ile Asn Gln Ile 225 230 <210> 6 <211> 201 <212> PRT <213> Staphylococcus aureus

Lys Glu Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu 10 His Arg Tyr Tyr Ser Ser Glu Ser Phe Asp Phe Ser Asn Ile Ser Gly 20 25 Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Asp 35 40 45 Gly Gln Asn His Gln Leu Phe Leu Leu Gly Glu Asp Lys Ala Lys Tyr 50

Lys Gln Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile

Asp Pro Asn Gly Asg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Gln Ser Ser Glu Thr Asn Thr Pros Leu Phe Val Lys Lys Val Tyr Gly Gly Asg Leu Asp Ala Ser Ile Glu Ser Phe Ser Ile Asn Lys Glu Yal Yal Ser Leu Lys Glu Las Asp Phe Lys Ile Arg Gln His Leu Val Lys Asn Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr 160 Phe Asn Leu Lys Asg Gly Glu Lys Lys Gly Ile Asp Leu Gly Asg Lys Leu Gln Phe Glu His Met Gly Asg Val Leu Asn Ser Lys Asg Ile Gln Asn Ile Ala Val Thr Leu Lys Gln Ile

70

<210> 7 <211> 201 <212> PRT

<213> Staphylococcus aureus

<400> 7

Lys Glu Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu 11
His Arg Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu Lys Gln Asn His Gln Leu Phe Leu Leu Gly Glu Asp Lys Ala Lys Tyr So Gln Gly Leu Gln Gly Gln Asp Val Phe Val Lys Glu Leu Ile 80
Asp Pro Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn

Asn Gln Ser Ser Glu Thr Asn Ile His Leu Leu Val Asn Lys Leu Asp Gly Gly Asn Leu Asp Ala Thr Asn Asp Ser Phe Leu Ile Asn Lys Glu 125 Asn Lys Glu 130 Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Lys Gln Leu Val 130 Lys Tyr Gly Leu Tyr Gln Gly Thr Ser Lys Tyr Gly Lys Ile Thr 145 Lys Tyr Gly Leu Tyr Gln Gly Thr Ser Lys Tyr Gly Lys Ile Thr 160 Ile Ile Leu Asn Gly Gly Lys Lys Gln Glu Ile Asp Leu Gly Asp Lys 175 Leu Gln Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Asn Lys Ile Glu Val Thr Leu Lys Gln Ile

2210 8
2211 8
2210 8
2212 DNA
2213 Staphylococcus aureus

atgaaattaa aaacgttagc taaagcaaca ttagcattag gtttattaac tactggtgtc attacatcag aaggtcaagc agttcaagcg gcagaaaaac aagagaggat acaacattta catgatatta gagatttaca tcgatactac tcatcagaaa gtttcgaata tagtaatgtt agtggtaagg ttgaaaacta caatggttct aacgttgtac gctttaaccc aaaagatcaa aatcaccaat tattcttatt aggaaaagat aaagaacaat ataaagaagg ttcacaaggc caaaatgtct ttgtagtaca agaattaatt gatccaaacg gcagactatc tactgttggt ggtgtaacga agaaaaacaa caaaacttct gaaactaata cacctttatt tgttaataaa gttaatggtg aagattaga tgcatcaatt gactcattt taatccaaaa agaagaaaatc tcattaaaag agcttgattt caaaattaga caacaattag ttaataatta cggattatat tcaataaaag agcttgatt caaaattaga caacaattag ttaataatta cggattatat attgatttag gtgataaatt acaattcgag cgcatgggcg atgtgttgaa tagaaagacaatatagattag gtgataatt tacaattcaga cgcatgggcg atgtgttgaa tagaaagacaatagattagagta tatcagtcac tattaaccaa atttaa

<210> 9

<400> 8

<211> 696 <212> DNA

<213> Staphylococcus aureus

atgaaattaa aaacgttagc taaagcaaca ttggcattag gcttattaac tactggtgtg 60 attacatcag aaggccaagc agtccacgca aaagaaaagc aagagagagt acaacattta 120 tatgatatta aagacttata tcgatactac tcatcagaaa gttttgaatt cagtaatatt 180 agtggtaagg ttgaaaacta taacggttct aacgttgtac gctttaacca agaaaaacaa 240 300 aatcaccaat tattcttatt aggaaaagat aaagataaat ataaaaaagg ccttgaaggc cagaatgtct ttgtggtaaa agaattaatt gatccaaacg gtagactatc tactgttggt 360 420 ggtgtgacta agaaaaataa caaatcttct gaaactaata cacatttatt tgttaataaa gtgtatggcg gaaatttaga tgcatcaatt gactcatttt taattaataa agaagaagtt 480 tcactgaaag aacttgattt caaaattaga aagcaattag ttgaaaaata tggtttatat 540 aaaggtacga ctaaatacgg taagatcact atcaatttga aagacgagaa aaaggaagta 600 attgatttag gtgataaact gcaattcgag cgcatgggtg atgtgttgaa tagtaaggat 660 attcaaaata tagcagtgac tattaatcaa atttaa 696

<210> 10 <211> 696

<212> DNA

<213> Staphylococcus aureus

<400> 10

atgaaattaa aaacgttagc taaagcaaca ttggcattag gcttattaac tactggtgtg 60 attacatcag aaggccaagc agtccacgca aaagaaaagc aagagagagt acaacattta 120 tatgatatta aagacttata tcgatactac tcatcagaaa gttttgaatt cagtaatatt 180 agtggtaagg ttgaaaacta taacggttct aacgttgtac gctttaacca agaaaaacaa 240 300 aatcaccaat tattcttatt aggaaaagat aaagataaat ataaaaaagg ccttgaaggc cagaatgtct ttgtggtaaa agaattaatt gatccaaacg gtagactatc tactgttggt 360 ggtgtgacta agaaaaataa caaatcttct gaaactaata cacatttatt tgttaataaa 420 gtgtatggcg gaaatttaga tgcatcaatt gactcatttt taattaataa agaagaagtt 480 540 tcactgaaag aacttgattt caaaattaga aagcaattag ttgaaaaata tggtttatat aaaggtacga ctaaatacgg taagatcact atcaatttga aagacgagaa aaaggaagta 600 attgatttag gtgataaact gcaattcgag cgcatgggtg atgtgttgaa tagtaaggat 660 696 attcaaaata tagcagtgac tattaatcaa atttaa

<210> 11 <211> 696

<212> DNA	
<213> Staphylococcus aureus	
<400> 11 gtgaaattaa aaacgttagc taaagcaaca ttggcattag gcttattaac tactggtgtg	60
attacatcag aaggccaagc agtgcaagca aaagaaaagc aagagagagt acaacattta	120
tatgatatta aagacttaca tcgatactac tcatcagaaa gttttgaatt cagtaatatt	180
agtggtaagg ttgaaaatta taacggttct aacgttgtac gctttaacca agaaaatcaa	240
aatcaccaat tattcttatc aggaaaagat aaagataaat ataaagaagg ccttgaaggc	300
cagaatgtct ttgtggtaaa agaattaatt gatccaaacg gtagactatc tactgttggt	360
ggtgtaacga agaaaaataa ccaatcttct gaaactaata cacctttatt tataaaaaaa	420
gtgtatggcg gaaatttaga tgcatcaatt gaatcatttt taattaataa agaagaagtt	480
tcactgaaag aacttgattt caaaattaga caacatttag ttaaaaatta tggtttatat	540
aaaggtacga ctaaatacgg taagatcact ttcaatttga aagatggaga aaagcaagaa	600
attgatttag gtgataaatt gcaattcgag cacatgggcg atgtgttgaa tagtaaggat	660
attcaaaata tagcagtgac tattaatcaa atttaa	696
<210> 12	
<pre><211> 606 <212> DNA <213> Staphylococcus aureus</pre>	
<211> 606 <212> DNA	60
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12</pre>	60 120
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12 aaagaaaaac aggaacgtgt tcagcacctg tacgacatca aagacctgca ccgttactac</pre>	
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12 aaagaaaaac aggaacgtgt tcagcacctg tacgacatca aagacctgca ccgttactac tcctccgaat ccttcgaatt ctccaacatc tccggtaaag ttgaaaacta caacggttcc</pre>	120
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12 aaagaaaaac aggaacgtgt tcagcacctg tacgacatca aagacctgca ccgttactac tcctccgaat ccttcgaatt ctccaacatc tccggtaaag ttgaaaacta caacggttcc aacgttgttc gttcaacca ggaaaaacag aaccaccagc tgttcctgct gggtgaagac</pre>	120 180
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12 aaagaaaaac aggaacgtgt tcagcacctg tacgacatca aagacctgca ccgttactac tcctccgaat ccttcgaatt ctccacact tccggtaaag ttgaaaacta caacggttcc aacgttgttc gttcaacca ggaaaaacag aaccaccagc tgttcctgct gggtgaagac aaagctaaat acaaacaggg tctgcagggt caggacgttt tcgttgttaa agaactgatc</pre>	120 180 240
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12 aaagaaaaac aggaacgtgt tcagcacctg tacgacatca aagacctgca ccgttactac tcctccgaat ccttcgaatt ctccaacatc tccggtaaag ttgaaaacta caacggttcc aacgttgttc gtttcaacca ggaaaaacag aaccaccagc tgttcctgct gggtgaagac aaagctaaat acaaacaggg tctgcagggt caggacgttt tcgttgttaa agaactgatc gacccgaacg gtcgtctgtc caccgttggt ggtgttacca aaaaaaacaa ccagtcctcc</pre>	120 180 240 300
<pre><211> 606 <212> DNA <213> Staphylococcus aureus <400> 12 aaagaaaaac aggaacgtgt tcagcacctg tacgacatca aagacctgca ccgttactac tcctccgaat ccttcgaatt ctccaacatc tccggtaaag ttgaaaacta caacggttcc aacgttgttc gtttcaacca ggaaaaacag aaccaccagc tgttcctgct gggtgaagac aaagctaaat acaaacaggg tctgcagggt caggacgttt tcgttgttaa agaactgatc gacccgaacg gtcgtctgtc caccgttggt ggtgacca aaaaaaaacaa ccagtcctc gaaaccaaca tccacctgct ggttaacaaa ctggacggtg gtaacctgga cgctaccaac</pre>	120 180 240 300 360
<pre><211></pre>	120 180 240 300 360 420
<pre><211></pre>	120 180 240 300 360 420 480
<pre><211></pre>	120 180 240 300 360 420 480 540

<210> 13 <211> 606 <212> DNA <213> Staphylococcus aureus

60

120

180

240 300

360

420

480

540

600

606

<210> 14 <211> 201

<213> Staphylococcus aureus

<400> 14

Lys Glu Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu 1 $10 \,$

His Arg Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly 25 30

Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu 35 40

Asn Gln Asn His Gln Leu Phe Leu Ser Gly Lys Asp Lys Asp Lys Tyr 50 60

Lys Glu Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile 65 70

Asp Pro Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn $85 \hspace{0.5cm} 90 \hspace{0.5cm} 95$

Asn Gln Ser Ser Glu Thr Asn Thr Pro Leu Phe Ile Lys Lys Val Tyr 100 105 110

Gly Gly Asn Leu Asp Ala Ser Ile Glu Ser Phe Leu Ile Asn Lys Glu

Glu Val Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Gln His Leu Val 130 135 140Lys Asn Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr 145 150 155 160 Phe Asn Leu Lys Asp Gly Glu Lys Gln Glu Ile Asp Leu Gly Asp Lys 165 170 175Leu Gln Phe Glu His Met Gly Asp Val Leu Asn Ser Lys Asp Ile Gln 180 185 190 Asn Ile Ala Val Thr Ile Asn Gln Ile 195 200 <210> 15 <211> 201 <212> PRT <213> Staphylococcus aureus Lys Glu Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu $1 \\ 0 \\ 15$ His Arg Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly 20 25 30Asn Gln Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Glu Lys Tyr 50 60Lys Glu Gly Ile Glu Gly Lys Asp Val Phe Val Val Lys Glu Leu Ile 65 70 75 80

Gly Gly Asn Leu Asp Ala Ser Ile Asp Ser Phe Ser Ile Asn Lys Glu 115 120 125

Asp Pro Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn

Asn Lys Ser Ser Glu Thr Asn Thr His Leu Phe Val Asn Lys Val Tyr $100 $ $105 $ $110 $

Glu Val Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Gln His Leu Val 130 135 140

sequence
Lys Asn Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr
145 150 155 160

Ile Asn Leu Lys Asp Gly Glu Lys Gln Glu Ile Asp Leu Gly Asp Lys
165 170 175

Leu Gln Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Asn 180 185 190

Lys Ile Glu Val Thr Leu Lys Gln Ile 195 200

<210> 16 <211> 201 <212> PRT <213> Staphylococcus aureus

<400> 16

Lys Glu Lys Gln Glu Arg Val Gln Glu Leu Tyr Asp Ile Lys Asp Leu 1 10 15

Tyr Arg Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly 20 25 30

Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu

Lys Gln Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Asp Lys Tyr

Lys Lys Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile 65 70 75 80

Asp Pro Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn 85 90 95

Asn Lys Ser Ser Glu Thr Asn Thr His Leu Phe Val Asn Lys Val Tyr 100 105 110

Gly Gly Asn Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Asn Lys Glu 115 120 125

Glu Val Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Lys Gln Leu Val

Glu Lys Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr 145 150 155 160

sequence Ile Asn Leu Lys Asp Glu Lys Lys Glu Val Ile Asp Leu Gly Asp Lys 170 175 Leu Gln Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Gln 180 185 190 Asn Ile Ala Val Thr Ile Asn Gln Ile 195 200 <210> 17 <211> 201 <212> PRT <213> Staphylococcus aureus <400> 17 Lys Glu Lys Gln Glu Arg Val Gln His Leu Tyr Asp Ile Lys Asp Leu 1 10 15 Tyr Arg Tyr Tyr Ser Ser Glu Ser Phe Glu Phe Ser Asn Ile Ser Gly $20 \hspace{0.5cm} 25 \hspace{0.5cm} 30$ Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Gln Glu 35 40 45 Lys Gln Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Asp Lys Tyr 50 55 Lys Lys Gly Leu Glu Gly Gln Asn Val Phe Val Val Lys Glu Leu Ile Asp Pro Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn Asn Lys Ser Ser Glu Thr Asn Thr His Leu Phe Val Asn Lys Val Tyr 100 105 110 Gly Gly Asn Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Asn Lys Glu Glu Val Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Lys Gln Leu Val

Glu Lys Tyr Gly Leu Tyr Lys Gly Thr Thr Lys Tyr Gly Lys Ile Thr 145 150 160 Ile Asn Leu Lys Asp Glu Lys Lys Glv Val Ile Asp Leu Gly Asp Lys 175 175 175

Page 14

Leu Gln Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Gln 180 185 190

Asn Ile Ala Val Thr Ile Asn Gln Ile 195 200

<210> 18 <211> 201 <212> PRT

<213> Staphylococcus aureus

<400> 18

Ala Glu Lys Gln Glu Arg Val Gln His Leu His Asp Ile Arg Asp Leu 1 10 15

Lys Val Glu Asn Tyr Asn Gly Ser Asn Val Val Arg Phe Asn Pro Lys

Asp Gln Asn His Gln Leu Phe Leu Leu Gly Lys Asp Lys Glu Gln Tyr 50 60

Lys Glu Gly Leu Gln Gly Gln Asn Val Phe Val Val Gln Glu Leu Ile $65 \hspace{1.5cm} 70 \hspace{1.5cm} 75 \hspace{1.5cm} 80$

Asp Pro Asn Gly Arg Leu Ser Thr Val Gly Gly Val Thr Lys Lys Asn 85

Asn Lys Thr Ser Glu Thr Asn Thr Pro Leu Phe Val Asn Lys Val Asn 100 105 110

Gly Glu Asp Leu Asp Ala Ser Ile Asp Ser Phe Leu Ile Gln Lys Glu

Glu Ile Ser Leu Lys Glu Leu Asp Phe Lys Ile Arg Gln Gln Leu Val 130 135 140

Asn Asn Tyr Gly Leu Tyr Lys Gly Thr Ser Lys Tyr Gly Lys Ile Ile 145 150 160

Ile Asn Leu Lys Asp Glu Asn Lys Val Glu Ile Asp Leu Gly Asp Lys 165 170 175

Leu Gln Phe Glu Arg Met Gly Asp Val Leu Asn Ser Lys Asp Ile Arg 180 185 190

Gly Ile Ser Val Thr Ile Asn Gln Ile 195 200